RESPIRATORY DISEASE OUTBREAKS

(also see Influenza Outbreaks)

1. **Agents**: Influenza viruses A, B, and C, *Mycoplasma pneumoniae*, adenovirus, respiratory syncytial virus, rhinovirus, parainfluenza viruses, *Legionella* spp., group A streptococcus, and severe acute respiratory syndrome (SARS) coronavirus.

2. **Identification:**

   a. **Acute febrile respiratory infection (AFRI)** is defined as any illness with a fever of at least 100°F accompanied by a cough or a sore throat in the absence of a known cause.

   b. **Symptoms**: Fever, upper or lower respiratory congestion, non-productive cough, sore throat, chills, headache, myalgia, malaise, gastrointestinal (GI) symptoms. Duration and recovery vary with agent. Infection with non-human strains of influenza such as avian influenza viruses theoretically may cause other illness, such as gastroenteritis or hepatitis.

   c. **Differential Diagnosis**: Agents that cause febrile respiratory illnesses or community acquired pneumonia including but are not limited to influenza, *Mycoplasma pneumoniae*, adenovirus, respiratory syncytial virus, rhinoviruses, parainfluenza viruses, *Legionella* spp., group A streptococcus, and severe acute respiratory syndrome (SARS) coronavirus.

   d. **Diagnosis**: Clinical syndrome associated with community outbreaks, confirmed by viral culture,, PCR, rapid antigen test, or a DFA/IFA test.

3. **Incubation**: varies with agent. Bacterial infections generally have longer incubation times than viral infections.

4. **Reservoir**: varies with agent; mostly human.

5. **Source**: Largely droplet spread by nasal and pharyngeal secretions, fomites.

6. **Transmission**: Droplet spread by contact with aerosolized droplets or contaminated fomites from infective persons. Possible airborne spread (influenza, SARS).

7. **Communicability**: Varies with agent. On average, up to 2 days prior to and through 1 day after resolution of fever; may be longer in children or in patients with compromised immune systems.

8. **Specific Treatment**: Supportive care – rest, antipyretics, fluids, etc. Bacterial infections require antibiotic treatment. With influenza, antiviral medications may reduce the severity and duration of influenza illness if administered within 48 hours of onset. Serious infections with RSV may be treated with Synagis™.

   Streptococcal and staphylococcal pneumonias may be secondary infections of influenza and should be treated with appropriate antibiotics.

9. **Immunity**: varies by agent.

REPORTING PROCEDURES

1. **Outbreaks reportable:**

   Under Title 17, Section 2500, *California Code of Regulations* all outbreaks are reportable.

   Outbreaks of respiratory illness may occur in healthcare and non-healthcare settings. By definition:

   A cluster or outbreak in a congregate-living facility (e.g., jail, juvenile hall, camps, assisted living centers) is defined as three or more cases of AFRI occurring within 48 to 72 hours in residents who are in close proximity to each other (i.e., in the same area of the facility).

   A cluster or outbreak in schools and daycare centers (i.e., community-based) is defined as a sudden increase of AFRI cases over the normal background rate or 5 cases of AFRI in one week in an epidemiologically linked group (such as a sports team, single classroom, after school group).

Special Situation: One case of confirmed influenza by any testing method in a skilled nursing facility resident is to be considered an outbreak (until proven otherwise) and should prompt enhanced surveillance for other cases. See Influenza Chapter.

2. **Report Forms (See Table):**

Use the following forms for outbreaks at various settings:

a. **Sub-acute healthcare facility**
For initial and final reports of AFRI outbreaks:
CD OUTBREAK INVESTIGATION — SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, fillable)

See **Sample Line List - Respiratory Outbreak Line List for Residents and Staff**.

ACDC reports these to the State by completing the **ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12)** with attachment of H-1164 form.

b. **Non-healthcare facility**
For initial report of AFRI outbreak:
INITIAL ASSESSMENT OF RESPIRATORY OUTBREAK REPORT AND WORKSHEET

For final report of an AFRI outbreak (if outbreak continues after initial report has been filed): **ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12**)

Special Note: When an outbreak is reported and the first assessment is made, a PHN should fill out the **INITIAL ASSESSMENT OF RESPIRATORY OUTBREAK REPORT AND WORKSHEET**. At that point, if the AMD determines that the outbreak is over or that the situation does not meet the definition of an outbreak, then inform the facility to wash hands, teach respiratory etiquette, keep sick people out of facility for 24 hours after fever resolves. Providing educational materials may be sufficient and no active investigation need be taken. The initial form then should be submitted to ACDC checking boxes for "No further investigation needed" and "Outbreak, Not Ongoing".

If the situation does look like an outbreak (ex: 10 cases in a classroom in 1 week, any case(s) in a nursing home or facility for the developmentally disabled) then a more significant follow-up would be needed including considering site visit, offering post exposure prophylaxis, and getting swabs or following up on reports of diagnostic tests by private medical docs. In that case **ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12)** should be submitted. When the outbreak is closed, the **ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12**) should be submitted.

3. **Epidemiologic Data for Outbreaks:**

a. Establish a case definition (i.e., fever [measured or reported] and either cough, sore throat, or stuffy nose): include pertinent clinical symptoms and laboratory data (if appropriate).

b. Confirm etiology of outbreak using laboratory data (rapid test, culture, or PCR).

c. Create line list that could include:
   i. names of cases
   ii. dates of onset
   iii. symptoms
   iv. age
   v. hospitalization status
   vi. results of laboratory tests
   vii. prior immunization history
   viii. travel history, if relevant
   ix. epi links to other cases (room #s, grades in school, etc)
   x. avian or swine exposure, if relevant

d. Create an epi-curve, by date of onset for all cases of ILI during the outbreak. Only put those that meet the case definition on the epi-curve.

e. Maintain surveillance for new cases until rate of AFRI is down to "normal" or no new cases for 1 week.

CONTROL OF CASE, CONTACTS & CARRIERS

CASE: Varies by agent.

Precautions: None. Advise patients to stay away from work or school for at least 24 hours after

resolution of fever. Limit exposure to others, especially those at high risk for complications.

CONTACTS: No restrictions.

CARRIERS: Not applicable.

GENERAL CONTROL RECOMMENDATIONS FOR OUTBREAKS

1. Reinforce good hand hygiene among all (including visitors, staff, and residents/students).
2. Emphasize respiratory etiquette (cover cough and sneezes, dispose of tissues properly).
3. Provide posters and health education about hand hygiene and respiratory etiquette.
4. Discourage sharing water bottles or water fountains.
5. Emphasize importance of early detection of cases and removing them from contact with others.
6. Encourage regular environmental cleaning with EPA registered disinfectant appropriate for respiratory pathogens.
7. Consider isolation and/or cohorting and/or quarantine for congregate-living facilities.
8. Consider canceling group activities.
9. Provide educational materials to facility-including posters, handouts, etc. Go to this website to order influenza and respiratory virus health education: http://publichealth.lacounty.gov/acd/HCPmaterials.htm

Consider the additional recommendations for congregate-living facilities, especially with high risk patients:

1. Close facility or affected areas to new admissions until 1 week after last case.
2. Suspend group activities until 1 week after last case.
3. If possible, separate staff that cares for sick from staff that cares for well patients.
4. Institute droplet precautions.
5. Refer to California Department of Public Health, *Recommendations for the Prevention and Control of Influenza in California Long-Term Care Facilities*

DIAGNOSTIC PROCEDURES

Clinical and epidemiologic histories are required to aid in laboratory test selection.

1. **Nasopharyngeal (NP) or nasal swab, and nasal wash or aspirate**. NP swabs are preferred because the specimens can be tested for influenza and a variety of other respiratory pathogens using PCR based technology. All other specimens can only be tested for influenza. Samples should be collected within the first 4 days of illness. Collect 5 specimens for any community-based outbreak (3 for health facilities) and select those patients with the most recent onset for specimen collection.
2. NOTE: culture should not be attempted when avian influenza is suspected. Contact Public Health Laboratory (PHL) or ACDC for instructions.

   Container: Viral Culturette. Do NOT use wooden swab.

   Laboratory Form: **Reference Examination for Influenza A, B and/or Other Respiratory Viruses** or online request if electronically linked to the PHL.

   Examination: Testing algorithm is determined by the PHL.

   Material: Nasopharyngeal swab preferred; nasal swab can be used if necessary. See Standardized procedures for Nasopharyngeal Specimen Collection

   Storage: Keep refrigerated and upright. Deliver to Public Health Laboratory as soon as possible.

PREVENTION/EDUCATION

1. All persons >6 months are recommended to receive an annual influenza vaccine.

2. Practice good personal hygiene, avoid symptomatic persons during outbreaks, and do not go to work or school when ill with a respiratory disease.

3. Do not give aspirin to children with influenza and other viral illnesses.

4. Postpone elective hospital admissions during epidemic periods, as beds may be needed for the ill.

5. Restrict the movement of staff and visitors with respiratory infections at all healthcare facilities.

Additional information on the control of influenza during outbreaks can be found in the B-73 Influenza chapter.

CDC. Infection Control Guidance for the Prevention and Control of Influenza in Acute Care Facilities.

CDC. Infection Control in Health Care Facilities. California Department of Public Health. *Recommendations for the Prevention and Control of Influenza in California Long-Term Care Facilities*.

RESPIRATORY DISEASE OUTBREAK FORMS

SUB-ACUTE HEALTHCARE FACILITY	INITIAL REPORT	FINAL REPORT
	CD OUTBREAK INVESTIGATION — SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute, fillable) ACDC reports these to the State by completing the CDPH Congregate-Living Setting Outbreak Form with attachment of H-1164 form.	**ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12)**
NON-HEALTHCARE FACILITY	**INITIAL REPORT**	**FINAL REPORT**
○ Congregate-Living (e.g., jail, juvenile hall, camps, assisted living center)	**INITIAL ASSESSMENT OF RESPIRATORY OUTBREAK REPORT AND WORKSHEET**	**ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12)**
○ Community-Based (e.g., school, daycare center)	**INITIAL ASSESSMENT OF RESPIRATORY OUTBREAK REPORT AND WORKSHEET**	**ACUTE FEBRILE RESPIRATORY ILLNESS OUTBREAK REPORT FORM (CDPH 9003 3/12)**